

Contributions to a Knowledge of the family Pipunculidae of North Korea (Diptera)*

Milan KOZÁNEK¹ & Yong-Jung KWON²

¹Institute of Experimental Phytopathology and Entomology, Slovak Academy of Sciences, 900 28
Ivanka pri Dunaji, Czechoslovakia

²Department of Agricultural Biology, College of Agriculture, Kyungpook National University,
Taegu 702-701, Korea

Abstract As the fourth series of the systematic survey on the Korean Pipunculidae, a total of 25 species collected from North Korea are treated here. Among them, 23 species are new to Korean fauna.

Key words Systematics, Diptera, Pipunculidae, North Korea.

INTRODUCTION

Recently several taxonomic survey on North Korean Pipunculidae were conducted by De Meyer and Kozánek (1990), and subsequently by Kozánek & Kwon (1991a, b, c). This work is the fourth series to improve our knowledge of pipunculids from North Korea, and the authors report 25 species including 23 species hitherto unknown to Korean fauna.

The specimens examined here were made mainly during the entomological expeditions on the basis of the Czechoslovak-North Korean Cultural Agreement in May 1988 and August 1989, and now deposited in the collection of the Slovak National Museum, Bratislava, Czechoslovakia (CSNM). Other numerous materials were loaned from Hungarian Natural History Museum, Budapest, Hungary (HNHM).

LIST OF SPECIES

1. *Verrallia villosa* (von Roser, 1840) 털머리파리 (신칭)

Onjŏng-ri, Mt., Kŭmgang-san, Kangwŏn Prov., 17.V.1988, 1 ♀, M. Kozánek (CSNM).
New to Korea.

* This study is the 4th series of "Classification of the Family Pipunculidae from Korea (Diptera)".

2. *Chalarus spurius* (Fallén, 1816) 들머리파리 (신칭)

Mt. Suyang-san, 10km N.W. of Haeju, Hwangnam Prov., 6.V.1988, 1♂, M. Kozánek(CSNM); Ongnyu-dong valley, Mt. Kūmgang-san, Kangwŏn Prov. 24.V.1988, 1♂, M. Kozánek(CSNM); Manmulsang, Mt. Kūmgang-san, Kangwŏn Prov., 24.V.1988, 1♂, M. Kozánek(CSNM); Onsŭpchŏng, Mt. Paektu-san Ryanggan Prov., 19.VIII.1989, 1♂, M. Kozánek(CSNM).

New to Korea.

3. *Dorylomorpha borealis* (Wahlgren, 1910) 북쪽기생머리파리 (신칭)

Mt. Paektu-san, Ryanggan Prov., 16.VIII.1989, 5♂, 4♀, M. Kozánek(CSNM). New to Korea.

4. *Dorylomorpha extricata* (Collin, 1937) 긴침기생머리파리 (신칭)

Manmulsang, Mt. Kūmgang-san, Kangwŏn Prov., 24–26.V.1988, 3♂, 1♀, M. Kozánek(CSNM).
New to Korea.

5. *Dorylomorpha rufipes* (Meigen, 1824) 기생머리파리(신칭)

Manmulsang, Mt. Kūmgang-san, Kangwŏn Prov., 24–26.V.1988, 2♂, 4♀, M. Kozánek(CSNM).
New to Korea.

6. *Dorylomorpha shatakini* Albrecht, 1990 침기생머리파리(신칭)

Mt. Sobaek-san, Mt. Paektu-san Ryanggan Prov., 17.VIII.1989. 1♀, M. Kozánek(CSNM); Onsŭpchŏng, Mt. Paektusan, Ryanggan Prov., 19.VIII.1989, 2♀, M. Kozánek(CSNM).
New to Korea.

7. *Tomosvaryella epichalca* (Perkins, 1905) 꼭지윤머리파리(신칭)

Mt. Taesŏng-san, 12km N.E. from P'yŏngyang, P'yŏngyang city, 8.VIII.1971, 1♂, S. Horvatovich & J. Papp(HNHM).
New to Korea.

8. *Tomosvaryella inazumae* (Koizumi, 1960) 번개 윤머리파리(신칭)

P'yŏngyang-hotel garden, P'yŏngyang city, 6–7. I X.1971, 5♂, 9♀, S. Horvatovich & J. Papp(HNHM); P'yŏngyang-city park, P'yŏngyang City, 5.VIII.1971, 5♂, S. Horvatovich & J. Papp(HNHM); Sogam, 45km N. from P'yŏngyang, P'yŏngnam Prov., 12.VIII.1971, 4♂, 3♀, S. Horvatovich & J. Papp(HNHM).

New to Korea.

9. *Tomosvaryella sylvatica* (Meigen, 1824) 윤머리파리(신칭)

Mt. Suyang-san, 10km N.W. of Haeju, Hwangnam Prov., 6.V.1988, 1♂, M. Kozánek(CSNM); Wönsan—botanic garden, Kangwön Prov., 28.V.1988, 1♂, M. Kozánek(CSNM); Mt. Ryongak-san, 10km W. of P'yöngyang, P'yöngyang city, 1♂, 9.V.1988, M. Kozánek(CSNM); Samilp'o lake, Mt. Kūmgang-san, Kangwön Prov., 1♀, 20.V.1988, M. Kozánek(CSNM).

New to Korea.

10. *Pipunculus campestris* Latreille, 1804 참머리파리(신칭)

Mt. Paektu-san, Ryanggang Prov., 16. VIII. 1989, 1♀, M. Kozánek(CSNM); Mt. Sobaek-san, Mts. Paektu-san, Ryanggang Prov., 17. VIII. 1989, 1♂, M. Kozánek(CSNM); Ongryu-dong valley, Mt. Kūmgang-san, Kangwön Prov., 21. V. 1988, 3♂, M. Kozánek(CSNM); Mt. Suyang-san, 10km N.W. of Haeju, Hwangnam Prov., 8. V. 1988, 1♂, M. Kozánek(CSNM); Mt. Taesöng-san, 12km N. from P'yöngyang, P'yöngyang city, 8. VIII. 1971, 1♂, S. Horvatovich & J. Papp(HNHM); Mt. Kuksönbong, 40km N.E. from Namp'o, P'yöngnam Prov., 5. I X. 1971, 1♂, S. Horvatovich & J. Papp (HNHM).

New to Korea.

11. *Pipunculus subvaripes* Morkakote, 1990 동해참머리파리(신칭)

5km S.W. of Hyangsan, Mt. Myohyang-san, P'yöngbuk Prov., 4. VIII. 1989, 1♂, M. M. Kozánek(CSNM).

New to Korea.

12. *Pipunculus thomsoni* Becker, 1897 대륙참머리파리(신칭)

Mt. Paektu-san, Ryanggang Prov., 19. VIII. 1977, 1♀, A. Draskovits(HNHM).

New to Korea.

13. *Cephalops aeneus* Fallén, 1810 공머리파리(신칭)

Onsüpchöng, Mt. Paektu-san, Ryanggang Prov., 19.VIII.1989, 4♀, M. Kozánek(CSNM); Samjiyöñ, Mt. Paektu-san, Ryanggang Prov., 1600m, 27.VIII.1971, 1♂, 1♀, S. Horvatovich & J. Papp. (HNHM).

New to Korea.

14. *Cephalops carinatus* (Verrall, 1901) 산공머리파리(신칭)

Mt. Paektu-san, Ryanggang Prov., 16. VIII. 1989, 2♂, M. Kozánek(CSNM); Qnsüpchöng, Mt. Paektu-san, Ryanggang Prov., 19. VIII. 1989, 1♂, 1♀, M. Kozánek(CSNM); Samjiyöñ, Mt. Paektu-san, Ryanggang Prov., 1600m, 25. VIII. 1971, 1♂, S. Horvatovich & J. Papp(HNHM).

New to Korea.

15. *Cephalops shikotanicus* Kuznetsov, 1990 발해공머리파리(신칭)

Onsŭpchŏng, Mt., Paektu-san Ryanggang Prov., 19. VIII. 1989, 2♂, M. Kozánek(CSNM).
New to Korea.

16. *Cephalops signatus* (Becker, 1900) 얼룩공머리파리(신칭)

Mt. Sobaek-san, Mt. Paekdu-san, Ryanggang Prov., 17. VIII. 1989, 1♂, M. Kozánek(CSNM);
Onsŭpchŏng, Mt. Paektu-san, Ryanggang Prov., 19. VIII. 1989, 3♂, 1♀, M. Kozánek(CSNM); Mt.
Taesŏng-san, 12km N.E. from P'yŏngyang, P'yŏngyang city, 8. VIII. 1971, 1♂, 1♀, S. Horvatovich &
J. Papp(HNHM).
New to Korea.

17. *Cephalops vittipes* (Zetterstedt, 1844) 줄공머리파리(신칭)

Manmulsang, Mt. Kŭmgang-san, Kangwŏn Prov., 24. V. 1988, 3♂, 2♀, M. Kozánek(CSNM);
Mt. Ryongak-san, 10km W. of P'yŏngyang, P'yŏngyang city, 9-14. V. 1988, 3♂, 3♀, M. Kozánek
(CSNM); Ongnyu-dong valley, Mt. Kŭmgang-san, Kangwŏn Prov., 21. V. 1988, 1♂, M. Kozánek
(CSNM); Tŏkkol valley, Mt. Myohyang-san, P'yŏngbuk Prov., 13. V. 1988, 1♀, M. Kozánek
(CSNM).

The present species is already recorded from North Korea by de Meyer and Kozánek (1990).

18. *Microcephalops vestitus* (Becker, 1900) 좁머리파리(신칭)

Onsŭpchŏng, Mt. Paektu-san, Ryanggang Prov., 19. VIII. 1989, 1♂, M. Kozánek(CSNM).
New to Korea.

19. *Eudorylas fascipes* (Zetterstedt, 1844) 잡초큰머리파리(신칭)

Mt. Taesŏng-san, 12km N.E. from P'yŏngyang, P'yŏngyang city, 8. VIII. 1971, 2♂, S. Horvatovich
& J. Papp(HNHM).
New to Korea.

20. *Eudorylas furvulus* Collin, 1956 산큰머리파리(신칭)

Mt. Paektu-san, Ryanggang Prov., 16. VIII. 1989, 5♂, 4♀, M. Kozánek(CSNM); Mt. Paektu-san,
Ryanggang Prov., 1900m, 18. VIII. 1971, 1♂, S. Horvatovich & J. Papp(HNHM).
New to Korea.

21. *Eudorylas fascipes* (Zetterstedt, 1844) 나도잡초큰머리파리(신칭)

Mt. Sobaek-san, Mt. Paektu-san, Ryanggang Prov., 17. VIII. 1989, 1♂, M. Kozánek(CSNM).
New to Korea.

22. *Eudorylas fustis* Morakote et Yano, 1990 무늬큰머리파리(신칭)

Manmulsang, Mt. Kūmgang-san, Kangwŏn Prov., 26.V.1988, 2♂, M. Kozánek(CSNM).
New to Korea.

23. *Eudorylas macropygus* (de Meijere, 1941) 남쪽큰머리파리(신칭)

P'yŏngyang-hotel garden, P'yŏngyang city, 15.VIII.1971, 6♂, 2♀, S. Horvatovich & J. Papp (HNHM); P'yŏngyang-city park, P'yŏngyang city, 1. I X.1971, 7♂, 5♀, S. Horvatovich & J. Papp (HNHM); Sŏgam, 45km N. from P'yŏngyang, P'yŏngnam Prov., 12.VIII.1971. 1♂, 2♀, S. Horvatovich & J. Papp (HNHM); Man'gyŏngdae, P'yŏngyang city, 5.VIII.1971, ??, S. Horvatovich & J. Papp (HNHM).

New to Korea.

24. *Eudorylas mutillatus* (Loew, 1857) 끝둥큰머리파리(끝둥큰장구등에)

P'yŏngyang-hotel garden, P'yŏngyang city, 7-8.VIII.1971, 2♂, 1♀, S. Horvatovich & J. Papp (HNHM); P'yŏngyang park, P'yŏngyang city, 1.IX.1971, 1♂, 1♀, S. Horvatovich & J. Papp (HNHM); Mt. Taesŏng-san, 12km N.E. from P'yŏngyang, P'yŏngyang city, 7.VIII.1971, 1♂, S. Horvatovich & J. Papp(HNHN); Sŏgam, 45km N. from P'yŏngyang, P'yŏngnam Prov., 12.VIII.1971, 1♂, S. Horvatovich & J. Papp (HNHM).

This species is well known to be a parasitoid of *Nephotettix cincticeps* (Uhler) at paddy fields in South Korea, but new to North Korea.

25. *Eudorylas orientalis* (Koizumi, 1959) 동쪽큰머리파리(신칭)

P'yŏngyang hotel garden, P'yŏngyang city, 12.VIII.1971, 2♂, S. Horvatovich & J. Papp(HNHN), Mt. Taesŏng-san, 12km N.E. from P'yŏngyang, P'yŏngyang city, 8.VIII.1971, 1♂, S. Horvatovich & J. Papp (HNHN).

New to Korea.

ACKNOWLEDGEMENTS

The first author (MK) would like to thank Prof. C. H. Paek, Dr. C. I. Kim, Dr. R. T. Chon, and Dr. C. K. Li (Zoological Institute, P'yŏngyang), for providing working facility during his stay in North Korea. The authors are grateful to Dr. A. Deli-Drakovits for loaning Korean Pipunculidae material from collections of HNHM, Budapest, Hungary. Special thanks are due to Mr. M. Ackland (Oxford, U. K.) and Dr. M. De Meyer (Brussel, Belgium) for discussing the manuscript. The authors are also indebted to Mrs. A. Huckova and Miss E. Y. Huh, for word processing.

REFERENCES

- Albrecht, A. 1990. Revision, phylogeny and classification of the genus *Dorylomorpha* (Diptera, Pipunculidae). Acta Zool. Fenn., 188: 1–240.
- De Meyer, M. 1989a. A synthesis of the present knowledge of Pipunculidae (Diptera) in Belgium. Comptes Rendus du Symposium "Invertebres de Belgique", 373–377.
- De Meyer, M. 1989b. The West–Palearctic species of the pipunculid genera *Cephalops* and *Beckerias* (Diptera): classification, phylogeny and geographical distribution. J. Nat. Hist., 23: 725–765.
- De Meyer, M. & M. Kozánek. 1990. Description of a new species of the genus *Cephalops* Fallén (Diptera, Pipunculidae) from North Korea. Biologia (Bratislava), 45(10): 827–830.
- Grootaert, P. & M. De Meyer. 1986. On the taxonomy and ecology of *Nephrocerus* Zetterstedt (Diptera, Pipunculidae) with a redescription of *N. lapponicus* and a key to the European species. Bull. Inst. R. Sci. Nat. Belg. Ent., 56: 85–91.
- Kim, C. H., J. B. Kim and J. S. Park, 1987. Detection and identification of biological control agents from planthoppers and leafhoppers. I. Studies on the parasitic natural enemies and their parasitism on rice planthoppers and leafhoppers in southern part of Korea. Journ. Inst. Agr. Res. Util. Gyeongsang Univ., 21(2): 63–80.
- Kim, C. W. 1971. Family 27. Pipunculidae. Ill. Cncycl. Fauna & Fl. Kor. 12, Ins., 4: 888.
- Kim, J. P. and C. H. Kim, 1986. Parasitism of green rice leafhopper, *Nephotettix cincticeps* Uhler by *Alloneura oryzaetora*, *Eudorylas cruciator* and *Eudorylas tsuboi* (Pipunculidae: Diptera) in southern rice cultural area. Res. Rep. RDA (P. M. & U.), 28: 82–85.
- Kozánek, M. and Y. J. Kwon, 1991a. Classification of the family Pipunculidae from Korea (Diptera). Part 1. On the genus *Moriparia* gen. nov. from North Korea. Ins. Koreana, 8: 76–84.
- Kozánek, M. and Y. J. Kwon, 1991b. Ditto. Part 2. On the genus *Eudorylas* Aczel from North Korea. Korean J. Entomol., 21(4): 157–165.
- Kozánek, M. and Y. J. 1991c. Ditto. Part 3. A new species of the genus *Nephrocerus* Zetterstedt from North Korea. Korean J. Appl. Entomol., 30: 7–9.
- Kuznetsov, S. Y. 1990. Palearctic species of Pipunculidae (Diptera). Dipt. Res., 1: 22–50.
- Morakote, R. and Y. Hirashima. 1990. A systematic study of the Japanese Pipunculidae (Diptera). Part I – IV. J. Fac. Agr. Kyushu Univ., 34: 123–239.
- Morakote, R., Y. Hirashima and K. Yano. 1990. Ditto. Part V – VI. Ibid., 34: 281–395.
- Paik, J. C. and C. Y. Hwang, 1990. Preliminary survey of natural enemies of rice pests for the development of integrated control programmes. Res. Rep. RDA (Agr. Inst. Coop.), 33: 153–171.
- Tanasijtshuk, V. N. 1988. Family Pipunculidae. Cat. Pal. Dipt., 8: 230–245.

北韓産 머리파리科에 대하여

M. Kozánek¹ · 權容正²

¹체코슬로바키아과학원 실험식물병리 및 곤충연구소

²慶北大學校 農科大學 農生物學科

北韓에서 採集된 머리파리類를 分類하던 중, 새로 25種을 同定하였기에 이에 報告코자 한다. 그 중에서 23種은 韓半島에서 처음 記錄된다.

검색어 : 분류, 파리目, 머리파리科, 북한.

(Received: March 11, 1992)